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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,961	08/30/2006	Hiroshi Kawamura	6340-000075/NP	5192
27572 7590 04/29/2010 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
EXAMINER				
JOYCE, WILLIAM C				
ART UNIT		PAPER NUMBER		
3656				
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04/29/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/580,961

Applicant(s)

KAWAMURA ET AL.

Examiner

William C. Joyce

Art Unit

3656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 19 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) 14 and 19-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 15-18 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ ~~Notice of Informal Patent Application~~
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the Election filed February 19, 2010 for the above identified patent application.

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on February 19, 2010 is acknowledged. The traversal is on the ground(s) that it would not be an undue burden on the Examiner to prosecute all the inventions. This is not found persuasive because each disclosed species has a separate subject of inventive effort and therefore is considered to be diverging subject matter. The disclosed species may be classified together, but examining the diverging subject matter of each disclosed species is considered a serious burden on the examiner. The requirement is still deemed proper and is therefore made FINAL.
2. Claims 14 and 19-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on February 19, 2010.

Drawings

3. Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13, 15, 17, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al. (USP 6,974,259) in view of Mizukoshi et al. (USP 6,135,571).

Nomura et al. illustrate In Figure 5, a vehicle wheel bearing apparatus for a wheel of vehicle comprising: an axle housing (2) supported under a body of a vehicle; a hollow drive shaft (3) inserted into the axle housing; a wheel bearing arranged between the drive shaft and an opening of the axle housing and structured as a unit of a wheel hub and a double row rolling bearing; the wheel bearing comprising: an inner member (12) including a wheel hub integrally formed with a wheel mounting flange (11) on one end and an axially extending cylindrical

portion; at least one inner ring (25) press-fit onto the cylindrical portion of the wheel hub and said at least one inner ring with at least one inner raceway surface formed on its outer circumferential surface; an outer member (2) arranged around the inner member and formed with double row outer raceway surfaces on its inner circumferential surface opposite to the inner raceway surfaces; double row rolling elements (22) arranged between the inner and outer raceway surfaces of the inner member and the outer member; a cage (23) for freely holding the rolling elements; seals for sealing an annular space between the inner member and the outer member.

Nomura et al. do not teach a metal cap fitted into an end of a central bore of the wheel hub. The prior art to Mizukoshi et al. teaches a metal cap (34) fitted into a bore of a vehicle hub. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the hub device of Nomura et al. with a cap, as taught by Mizukoshi et al., motivation being to protect the end of the drive shaft from its working environment.

With respect to claim 18, Nomura et al. and Mizukoshi et al. do not teach an elastic member attached to at least the fitting portion of the cap. However, it was well known in the art to provide a sealant, such as silicone, to the engaging surfaces of two inter-fitted machine components so as to provide a leak-proof connection. It would have been obvious to one of ordinary skill in the art at the

time the invention was made to provide an elastic sealant material, such as a silicone sealant to the engaging surfaces of the bore and the cap so as to provide a leak-proof connection.

With respect to claim 24, it would have been within the skill of one in the art to determine the amount of press-fit of the cap onto the hub so as to have an interference of 0.05 to 0.3 mm, to prevent the cap from falling out of the bore during operation.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al. (USP 6,974,259) in view of Mizukoshi et al. (USP 6,135,571), as applied to claim 15 above, and further in view of Yamamoto (USP 7,255,482).

The prior art to Nomura et al. does not disclose the hub assembly having the claimed hardened surfaces. However, the prior art to Yamamoto discloses an outer circumferential region of the wheel mounting flange from an inboard base side to the axially extending cylindrical portion is hardened by high frequency induction hardening to have a surface hardness of about 54-64 HRC, and the caulked portion remains unhardened to have a surface hardness of 25 HRC or less after forging. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bearing device of Nomura et al. with the claimed surfaces, as taught by Yamamoto, motivation being to provide

hardened wear resistant hub surfaces while prevent cracking of the caulked portion during manufacture.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Joyce/
Primary Examiner, Art Unit 3656